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AUTHOR Deaton, William L.; And Others
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ABSTRACT

The Course Entry Inventory was developed to assess the affective characteristics of college students when they enter a course. The four dimensions measured were: affective characteristics upon entry, willingness to undertake course activities and accept instruction, perceived importance of the course, and self-reported level of apprehension about the particular course. The inventory was administered to graduate and undergraduate students enrolled at the University of Kansas. The data, collected from 592 education majors, is presented. Use and refinement of the inventory resulted in five subscale scores: assuredness, career relevance, internal versus external motivation, preference for lecture, and attitudinal entry level. Indices of internal consistency reliability were found to be acceptable. It was concluded that the inventory could be a useful device in instructional systems that require the monitoring of student affect. Recommendations for further research and comments on the inventory's potential are included. (DSE)

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A Scale to Assess the Affective Entry Level of Student

William L. Deaton

John P. Poggio

Douglas R. Glasnapp

University of Kansas

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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A Scale to Assess the Affective Entry Level of Students

Current theory and research has centered around affective consequences of instruction. These consequences may be of an initial, intervening, or terminal nature. Instructional systems that seek to monitor student affect require procedures to assess the direction and magnitude of affective characteristics. Studies of teacher effectiveness may be well advised to consider the level or degree of expressed student affect on ratings of teacher effectiveness prior to instruction.

A generalized scale to measure student attitudes toward a course was developed by Remmers and Silance in 1934 but has since fallen into disuse. A review of the literature produced no other generalized instruments available to measure the level of student affect. Ideally, an instrument should be developed for each course; but this seems to be an unreasonable demand. The intent of this study was to construct a self-report measure that would assess the affective entry characteristics of students. The instrument was developed to be content free and thus usable across a variety of curricular areas.

Methods

Source of Items.

An initial pool of 80 items was obtained based on a content analysis of statements made by students in response to a question that asked them to reflect and subsequently report their entry attitudes and feelings prior to instruction in classes in which they had enrolled. After consideration of these items, additional items were added by the authors using the Affective Taxonomy as a guide. This taxonomy was used in an effort to include items that would likely scale across a continuum of affectivity.

This initial pool was then subjected to the equal appearing interval sorting procedure (Thurstone & Chave, 1925) so as to insure the scalability

of items. Eighty six judges were used. From this analysis items were retained if the Q value (the semi-interquartile range) of an item was less than 2.5, thus indicating a relatively high rate of agreement among raters judging the item. At the beginning of the following semester the retained items were placed on a new form and administered to 187 students prior to instruction. Students were asked to respond to each item using a 4-point Likert-type continuum ranging from strongly disagree to strongly agree.

Item data was treated using a principal components analysis followed by rotation to simple structure using the normalized varimax procedure. Based on this analysis 37 items were observed to have factor loadings of $\pm$.35 and were retained for inclusion on the final field test version of the planned instrument. Procedures used to this point in scale construction were adopted to insure the content validity of the items, and to the existence and the likely stability of the dimensions of entry affectivity.

Procedures for the Finalized Inventory

The 37 items surviving the preliminary analyses appeared to measure four dimensions of affective entry: A general factor of affective entry; an openness factor that assessed the degree to which students were willing to undertake course activities and accept instruction; a factor that assessed a students perceived importance of the course; and, a final factor that measured students reported level of apprehension and fears about a particular course. Modifications were made of these items and additional items were written by the authors in an attempt to create more specific, better defined factors related to constructs theoretical to be components of affective entry level behaviors (Bloom, 1976).

A pool of 48 forced-choice items resulted and were reviewed for clarity, ambiguity and intent. A four category Likert-type format was used to present items to respondents. A neutral/undecided category was not provided. Below is an illustration of the item format used:

1. This course should be interesting.
    a. strongly disagree
    b. disagree
    c. agree
    d. strongly agree

Participants responded to these finalized items using a machine scored answer sheet. The confidentiality of an individuals responses was assured.

The instrument, entitled the Course Entry Inventory, was administered to graduate and undergraduate students on the first day of class by the instructor prior to any instruction or introduction to the course. Students enrolled at the University of Kansas in the School of Education served as participants. Responses were obtained from 687 students enrolled in 22 different classes. The number of respondents used in any one analysis vary depending on the completeness of the data obtained. Complete data sets were obtained for 592 students.

Description of Individuals Responding to the Finalized Inventory

Six questions concerned with general background information were asked of all participants prior to the presentation of the instrument. Summaries of the responses to these questions are provided in Table 1. The sample consisted of approximately two females to every male with about two-thirds of the sample at the undergraduate level. Approximately one-third of the sample reported cumulative grade point averages of below 3.0, one-third

between 3.0 and 3.5, and the remaining third between 3.5 and 4.0. When asked to judge the proportion of the courses' content which had previously been covered in other courses, over one-half of the participants responded 0-20%, one-fourth reported 21-40%, and the remainder reported from 41 to 100%. For those courses in which the participants responded to the instrument, approximately 90% indicated that the course was required and 50% indicated that the course was in their major area of study.

Results

The responses to the 48-item Course Entry Inventory were used to establish a correlation matrix for a factor analysis. An orthogonal rotation using the Kaiser normalized Varimax procedure produced five interpretable factors when factor loadings greater than 0.50 were required to assign items to factors. Six of the 48 items failed to load on one of the five factors and were eliminated from further analyses.

The 42 items remaining were reanalyzed with the Varimax orthogonal rotation as well as with an oblique rotation using the direct oblimin criterion. Table 2 lists the means and standard deviations of the 42 items.

Items composing each scale and their associated factor loadings from the orthogonal and oblique solutions are given in Tables 3 through 7. Table 8 presents the factor correlations from the oblique solution. Though the factors labeled Affective Entry and Career Relevance show a high correlation (+.642), they were interpreted as two distinct scales tapping overlapping areas of affect and anticipatory future usefulness.

Factor one as reported in Table 3 is composed of 16 items and has been labeled Affective Entry. Items reference attitudes held toward the course, expression of interest in the course, and the extent of student

receptivity to anticipated course content. High scores on this factor represent positive attitudes and feelings toward the course, interest in the subject matter, and a commitment to invest energy toward learning course material. The internal consistency reliability (Cronbach's alpha) for this scale was .93.

Table 4 reports items loading on factor two which has been labeled Assuredness. The nine items on this scale assess the extent of self-confidence expressed by the student, and those feelings of apprehension about meeting course requirements. High scores on this scale represent those students who are confident in their ability to achieve and find little to be apprehensive about as they consider the impending course. Low scores are those who express doubt as to acceptable performance and possible tension associated with meeting course requirements. The internal consistency estimate of reliability for this scale was found to be .84.

Factor three was characterized by eight items assessing the perceived importance of the course to the students' chosen field. Career Relevance was chosen as the factor name to represent the future orientation of the items and their relations to individual expectations of the value of the course. High scores on this factor connote a recognition of the relevance and practicality of the course to future plans and careers. Low scorers would question the courses' value to a given area of study as well as deny the relevance of the material to be covered. Internal consistency for this scale was .91.

The fourth factor was labeled Internal/External Management since items focused on individual preferences for either self- or instructor-imposed course deadlines and requirements. Students preferring a more open and less traditional course structure with an absence of deadlines would

receive high scores. Low scores on this factor indicate a desire for external structure being imposed upon students with the associated deadlines and more formal course requirements. Internal consistency was .68 for this scale.

Three items relating to a Preference for Lecture made up the fifth factor. The behavior of others as it affects an individual's performance in the course distinguishes this factor from factor four. High scorers here prefer lectures to class discussions believing that they would suffer personally from time spent in discussion among students. Low scores indicate that class discussions would be enjoyable and not detrimental to what can be learned. An internal consistency of .66 was obtained for the scale.

As reported in Tables 3-7, the proportion of total variance accounted for by each of the five factors ranged from 28.1 per cent for factor 1 to 3.8 per cent for factor 5 with 52.5 per cent of the total variability accounted for by the five extracted factors.

Scale scores were computed for each individual by summing responses to all items on each scale. Responses were coded 1 for Strongly Disagree through 4 for Strong Agree and items stated in a direction opposite to the scale label were reverse scored. The means and standard deviations for the five scales are listed in Table 1. Sample sizes differed for each scale since only those cases with complete responses to all items within a scale were included. Cases with omitted items were not considered in the computation of scale scores.

A series of one-way analyses of variance were conducted for the five scale scores across the categories within each background question. Table 1 reports results of this analysis. Statistically significant differences

($p < .05$) were found on Affective Entry scores for four of the six background variables: affective classification, cumulative grade point average, per cent of content previously covered, and whether the course was required or an elective. Differences on the Assuredness scale were noted for classification, per cent of content previously covered, and whether the course was in the students' major area of study. Career Relevance scale scores evidenced differences on all questions except for sex. The only difference recorded for Internal/External Management scale scores was that between the course being required or elective. The Preference for Lecture scale showed differences existing for classification, cumulative grade point average, and whether the course was in the student's major area of study. Interestingly, no differences on any scale scores were noted for sex of the respondent. The classification of the participants produced differences on all but the I/E Management scale scores. Scale score means and standard deviations for each category of the six background questions are contained in Table 1.

Discussion

On the positive side, the instrument described in this paper offers an expedient method for assessing dimensions of student entering affect. Use of the inventory in its present form with college age students results in five scale scores on dimensions of attitudinal entry level, assuredness, career relevance, internal/external management, and preference for lectures. As reported, each dimension has been identified using methods of empirical validation, and resulting indices of scale internal consistency reliability have been found to be acceptable. The inventory would appear to be a useful device in those instructional systems that require monitoring of student affect.

While we cannot foresee the full scope of the inventory's usefulness in basic research studies, the potential would now seem to exist to examine ratings of teacher effectiveness in light of student entering affect. Studies of teacher effectiveness have to date failed to consider at what attitudinal stage students have begun instruction and then tried to tie this information to eventual ratings of instruction. The potential for research in this area seems both intriguing and necessary.

In terms of future development and work with the inventory we recognize some shortcomings and thus the need for continued work with the instrument. At the most basic level more items need to be prepared to increase the length of the internal/external management and preference for lecture subscales. The impact of this recommendation would be to improve their reliabilities. More importantly however, it should be recalled that the 42 items that currently represent the inventory in subscale arrangements accounted for approximately 53 per cent of the variability of the items (as found in the factor analysis of the finalized inventory). During the development of the scale the authors considered four additional dimensions which we believe could be included to sizeably reduce the unaccounted for 47 per cent of item variability. Two of these dimensions, an affective entry rating of the instructor and general attitude toward school, were conscientiously neglected during this phase of scale construction. An attempt was made to measure the other two, Academic self-concept and course specific achievement motivation, but these items failed to cluster in the factor portrayal of dimensions. In fact the Assuredness dimensions comes close to combining these two behaviors/traits, but the presence of the anxiety/apprehension items within this scale tailored its definition.

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Table 1

Summary of Means and Standard Deviations of Scale Scores for Background Question Categories

	Affective Entry		Assuredness		Career Relevance		I/E Management		Preference for Lecture		Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	N	Percentage
Sex												
Female	43.44	7.02	24.56	4.37	23.63	4.56	15.83	2.81	6.62	1.76	462	67.4
Male	43.46	8.57	24.48	5.34	23.72	4.76	16.28	3.12	6.90	2.02	223	32.6
Classification		**		**		**				**		
Sophomore	46.10	4.45	24.10	3.81	25.51	3.34	15.93	2.29	6.44	1.59	34	5.0
Junior	42.68	6.75	24.87	3.73	23.47	4.42	15.91	2.58	6.39	1.57	284	41.5
Senior	41.79	7.51	25.33	4.34	22.88	4.61	16.24	2.88	6.56	1.82	138	20.2
Masters	44.16	8.31	23.81	4.73	23.47	5.05	15.56	2.78	7.11	1.67	134	19.6
Beyond Masters	46.38	8.81	22.42	4.97	25.10	4.61	15.81	3.24	7.15	1.96	94	13.7
Cumulative GPA		**				**				**		
Below 1.99	48.00	5.56	25.66	1.15	26.66	3.05	16.00	1.73	5.00	1.00	3	0.4
2.0 - 2.49	42.59	6.84	23.98	3.17	23.20	4.21	15.72	2.75	6.73	2.04	56	8.2
2.5 - 2.99	42.92	6.41	24.09	3.65	23.32	4.44	15.95	2.55	6.39	1.57	174	25.4
3.0 - 3.49	42.79	7.65	24.54	4.53	23.27	4.44	15.76	2.74	6.54	1.67	236	34.5
3.5 - 4.00	44.70	8.47	24.66	4.89	24.42	5.00	16.07	3.00	7.02	1.77	215	31.4
Proportion of course content previously covered		**		**		**						
0 - 20%	44.11	7.29	23.65	4.46	24.20	4.46	15.70	2.77	6.69	1.68	374	56.0
21 - 40%	42.96	7.34	25.07	3.61	23.10	4.44	16.12	2.60	6.52	1.62	167	25.0
41 - 60%	44.00	7.33	25.61	4.38	23.70	4.45	16.25	2.66	6.40	1.88	82	12.3
61 - 80%	39.64	8.26	26.12	4.95	21.32	5.60	15.93	3.17	7.18	1.85	34	5.1
81 - 100%	36.36	11.17	24.90	5.18	21.45	7.71	15.54	3.98	7.27	2.05	11	1.6
Required or Elective course		**				**		**				
Required	42.84	7.16	24.42	4.30	23.40	4.58	15.85	2.74	6.66	1.72	511	90.4
Elective	48.88	8.66	24.17	4.35	25.96	4.01	16.58	3.05	6.61	1.84	65	9.6
Is course in major area of study?				**		**				**		
Yes	44.00	7.27	24.93	3.90	24.44	4.24	16.07	2.74	6.48	1.66	360	52.6
No	42.81	7.96	23.81	4.77	22.71	4.90	15.70	2.81	6.87	1.77	324	47.4

**p < .05

Table 2

Means and Standard Deviations of the 42 Items (N = 592)

Item	Mean	S.D.	Item	Mean	S.D.
1	3.07	0.68	22	2.36	0.76
2*	3.07	0.86	23*	3.13	0.69
3*	3.03	0.74	24	2.94	0.54
4*	2.76	0.77	25	2.35	0.75
5*	2.84	0.77	26	2.19	0.76
6*	2.80	0.76	27*	2.92	0.60
7	3.10	0.75	28*	2.72	0.76
8*	2.53	0.83	29*	2.99	0.60
9*	3.01	0.69	30	2.60	0.67
10	2.78	0.66	31	2.41	0.75
11	3.03	0.73	32*	2.63	0.72
12*	2.94	0.62	33	2.97	0.70
13	2.97	0.60	34	2.51	0.70
14	2.41	0.74	35*	2.82	0.63
15*	2.45	0.82	36	2.66	0.72
16*	2.50	0.73	37	2.75	0.73
17*	2.81	0.75	38*	2.44	0.78
18	2.30	0.80	39	2.39	0.72
19	2.92	0.71	40*	2.54	0.65
20	2.54	0.73	41*	2.18	0.69
21	2.99	0.61	42*	2.87	0.67

*Reverse scored

Table 3

Factor 1 and Associated Loadings: Affective Entry

Item		Orthogonal (Varimax)	Oblique (Direct Oblimin) Pattern	Oblique (Direct Oblimin) Structure
1.	I am curious about the subject matter to be presented.	.549	.441	.617
4.	This is one of those courses that I will just have to endure.	-.604	-.513	-.683
9.	If anything, I must admit a dislike for this class.	-.663	-.590	-.734
12.	I know everytime I attend this class I will wish I was somewhere else.	-.572	-.593	-.596
13.	This course should be interesting.	.679	.649	.724
21.	I am open-minded about this course. .	.502	.424	.570
22.	I have been looking forward to taking this class.	.704	.673	.758
25.	Of the courses I will take, this class is of high priority.	.615	.561	.664
27.	I seriously doubt if this course will make learning enjoyable.	-.614	-.572	-.669
30.	I expect to find the subject matter of this class exciting and stimulating.	.746	.750	.781
31.	I would like to have a collection of books dealing with the subject matter of this course.	.551	.490	.601
34.	I am pleasantly excited about this course.	.740	.743	.779
35.	It would be impossible to study for this class for as long as an hour without becoming bored.	-.526	-.524	-.557
39.	I would think this course should be terrific.	.698	.701	734
40.	This course will involve a lot of tedious busy work.	-.487	-.559	-.486
42.	This course will probably be dry and uninteresting.	-.739	-.762	-.770

Scale Characteristics:

Variance Accounted for	Number of Items	Mean	S.D.	N	Reliability
28.1%	16	43.45	7.58	627	.929

Table 4

Factor 2 and Associated Loadings: Assuredness

	Orthogonal (Varimax)	Oblique (Direct Oblimin)	
		Pattern	Structure
3. I will find it harder to learn the material in this class than will other students.	-.616	-.606	-.638
6. The reputation this course has makes me feel apprehensive.	-.490	-.465	-.527
8. I am a little nervous about this class.	-.762	-.794	-.759
10. I should have little difficulty in meeting the requirements of this course.	.558	.569	.559
15. No matter how well I may prepare, taking tests in this course will frighten me.	-.652	-.670	-.645
20. I feel no real pressure to worry about this class.	.654	.683	.646
24. For what this course will cover, I should perform well.	.492	.469	.522
29. The tension that will be produced by this course will make it difficult to learn.	-.571	-.559	-.596
38. I would not say I am scared about this course, perhaps uneasy is the term.	-.612	-.610	-.625

Scale Characteristics:

Variance Accounted for	Number of Items	Mean	S.D.	N	Reliability
10.7%	9	24.41	4.34	653	.843

Table 5

Factor 3 and Associated Loadings: Career Relevance

Item		Orthogonal (Varimax)	Oblique (Direct Oblimin) Pattern	Oblique (Direct Oblimin) Structure
2.	The material to be covered is not vitally important to my professional interests.	-.572	-.612	-.679
7.	The content of the course will come in handy when I am on the job.	.638	.708	.725
11.	This course will be of importance to me in my future career.	.714	.788	.817
17.	I could be just as effective in my future career without taking this course.	-.615	-.667	-.717
19.	This course will definitely be a help to me in the future.	.740	.824	.833
23.	Given my area of study, I do not see why I should take this course.	-.713	-.812	-.781
33.	The course content seems to be relevant to my future profession.	.686	.760	.781
36.	I would highly recommend this course to anyone in my field.	.509	.475	.696

Scale Characteristics:

Variance Accounted for	Number of Items	Mean	S.D.	N	Reliability
5.5%	8	23.66	4.62	643	.908

Table 6

Factor 4 and Associated Loadings: Internal/External Management

	Orthogonal (Variance)	Oblique (Direct Oblimin) Pattern	Oblique (Direct Oblimin) Structure
5. If given too much freedom in this class, I probably will not put out as much effort as I should.	-.438	-.432	-.461
14. I would prefer it if this course allowed students to turn in assignments whenever they pleased.	.451	.482	.431
16. To learn the material in this course I need a structured environment.	-.472	-.432	-.513
28. If this is handled as a self-paced course, I will find it difficult to get motivated.	-.718	-.710	-.744
32. I will need the pressure of deadlines in order to accomplish this courses' requirements.	-.672	-.663	-.684
37. If I am given sufficient information (course objectives, references, etc.) I would feel comfortable learning the material on my own.	.368	.354	.385

Scale Characteristics:

Variance Accounted for	Number of Items	Mean	S.D.	N	Reliability
4.3%	6	15.91	2.71	671	.684

Table 7

Factor 5 and Associated Loadings: Preference for Lecture

Item	Orthogonal (Varimax)	Oblique (Direct Oblimin) Pattern	Oblique (Direct Oblimin) Structure
18. I would prefer in this class that time be spent lecturing rather than in class discussions	.600	.613	.615
26. Too much student participation during this class will limit what can be learned.	.624	.639	.637
41. An enjoyable part of this class will be hearing what other students have to say.	-.564	-.572	-.586

Scale Characteristics:

Variance Accounted for	Number of Items	Mean	S.D.	N	Reliability
3.8%	3	6.67	1.73	666	.656

Table 8

Factor Correlations for the Oblique Solution

Factor	Affective Entry	Assuredness	Career Relevance	I/E Management
Assuredness	-0.218			
Career Relevance	0.642	-0.016		
I/E Management	-0.103	0.218	-0.054	
Preference for Lecture	0.175	-0.198	0.055	-0.190